

1 **CLAIMS:**

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3 1. A method for automatic production of one or more sets of  
4 instructions for an input filter of a computer system, the method comprising:

5 obtaining input-description-data, which define the properties of valid input  
6 directly provided by a computing component without human intervention;

7 transforming the input-description-data into a data structure, wherein the  
8 data structure is an organized representation of the input-description-data;

9 with the organized representation of the input-description-data of the data  
10 structure, automatically generating a set of instructions for filtering input directly  
11 provided by a computing component without human intervention based upon the  
12 properties of valid input defined by the input-description-data.

13  
14 2. A method as recited in claim 1, wherein the generating comprises  
15 translating the organized representation of the input-description-data of the data  
16 structure into the set of instructions.

17  
18 3. A method as recited in claim 2, wherein the translating comprises:  
19 parsing the organized representation of the input-description-data of the  
20 data structure to acquire the input-description-data;

21 synthesizing the set of instructions based upon the input-description-data  
22 acquired by the parsing.

1           4.     A method as recited in claim 1 further comprising storing the data  
2 structures in a persistent form.

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4           5.     A method as recited in claim 1, wherein the data structure is in a  
5 hierarchical markup language.

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7           6.     A method as recited in claim 1, wherein the set of instructions as an  
8 input filter.

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10          7.     A method as recited in claim 1 further comprising loading the set of  
11 instructions as an input filter.

12  
13          8.     A method as recited in claim 1, wherein the set of instructions is  
14 generated with regard to filtering input for an application program module.

15  
16          9.     A method as recited in claim 1, wherein input-description-data  
17 define the properties of input selected from a group consisting of valid input only,  
18 invalid input only, and both valid and invalid input.

19  
20          10.    A method as recited in claim 1, wherein the properties of valid input  
21 indicate parameters of input by defining boundary delimitations of such  
22 parameters and define assumptions regarding such parameters.

1           **11.**   A method as recited in claim 1, wherein during the obtaining, input-  
2 description-data is obtained from a user via a graphical user interface.

3  
4           **12.**   A computer system comprising:  
5           an application program module configured to receive and respond to input  
6 provided by a computing component;  
7           an input filter module configured to receive input provided by a computing  
8 component for the application program module, filter the input, and pass the  
9 filtered input to the application program module,  
10           wherein the filter comprises one or more sets of instructions that, when  
11 executed, filter the input and such sets of instructions being automatically  
12 produced according to the method as recited in claim 1.

13  
14           **13.**   A computer system as recited in claim 12, wherein the computer  
15 system comprises a Web server.

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17           **14.**   A computer system as recited in claim 12, wherein the input filter  
18 module is further configured to receive input from the computing component via a  
19 communications network.

20  
21           **15.**   A computer-readable medium comprising a set of instructions for  
22 filtering input, wherein such set of instructions has been automatically produced  
23 by the method as recited in claim 1.

1       **16.** An input filter of a computer having computer-executable  
2 instructions that, when executed, filter input, wherein such computer-executable  
3 instructions were automatically produced by the method as recited in claim 1.

4  
5       **17.** A computer comprising one or more computer-readable media  
6 having computer-executable instructions that, when executed by the computer,  
7 perform the method as recited in claim 1.

8  
9       **18.** A computer-readable medium having computer-executable  
10 instructions that, when executed by a computer, performs the method as recited in  
11 claim 1.

12  
13       **19.** A method facilitating speedy and efficient production of one or more  
14 sets of instructions for an input filter of a computer system, the method  
15 comprising:

16       obtaining input-description-data, which define the properties of valid input  
17 provided by a computing component;

18       automatically generating a set of instructions for filtering input provided by  
19 a computing component based upon the properties of valid input defined by the  
20 input-description-data.

21  
22       **20.** A method as recited in claim 19 further comprising transforming the  
23 input-description-data into a data structure  
24  
25

1       **21.**   A method as recited in claim 20, wherein the data structure is in a  
2 hierarchical markup language.

3  
4       **22.**   A method as recited in claim 19 further comprising:  
5 transforming the input-description-data into a data structure;  
6 storing the data structures in a persistent form.

7  
8       **23.**   A method as recited in claim 19 further comprising:  
9 transforming the input-description-data into a data structure;  
10 storing the data structures in a persistent form;  
11 wherein the generating acquires the properties from the data structure.

12  
13       **24.**   A method as recited in claim 19 further comprising loading the set of  
14 instructions as an input filter.

15  
16       **25.**   A method as recited in claim 19, wherein the properties of valid  
17 input indicate parameters of input by defining boundary delimitations of such  
18 parameters and define assumptions regarding such parameters.

19  
20       **26.**   A method as recited in claim 19, wherein during the obtaining,  
21 input-description-data is obtained from a user via a graphical user interface.  
22  
23  
24  
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1           **27.** A computer-readable medium comprising a set of instructions for  
2 filtering input, wherein such set of instructions has been automatically produced  
3 by the method as recited in claim 19.

4  
5           **28.** An input filter of a computer having computer-executable  
6 instructions that, when executed, filter input, wherein such computer-executable  
7 instructions were automatically produced by the method as recited in claim 19.

8  
9           **29.** A computer system comprising:  
10 an application program module configured to receive and respond to input  
11 provided by a computing component;  
12 an input filter module configured to receive input provided by a computing  
13 component for the application program module, filter the input, and pass the  
14 filtered input to the application program module,  
15 wherein the filter comprises one or more sets of instructions that, when  
16 executed, filter the input and such sets of instructions being automatically  
17 produced according to the method as recited in claim 19.

18  
19           **30.** A computer system as recited in claim 29, wherein the computer  
20 system comprises a Web server.

21  
22           **31.** A computer system as recited in claim 29, wherein the input filter  
23 module is further configured to receive input from the computing component via a  
24 communications network.  
25

1  
2  
3       **32.**   A computer comprising one or more computer-readable media  
4 having computer-executable instructions that, when executed by the computer,  
5 perform the method as recited in claim 19.  
6

7       **33.**   A computer-readable medium having computer-executable  
8 instructions that, when executed by a computer, performs the method as recited in  
9 claim 19.  
10

11       **34.**   A method for facilitating the automatic production of one or more  
12 sets of instructions for an input filter of a computer system, the method  
13 comprising:  
14

15       obtaining input-description-data, which define the properties of valid input  
16 provided by a computing component;  
17

18       transforming the input-description-data into a data structure, wherein the  
19 data structure is an organized representation of the input-description-data.  
20

21       **35.**   A method as recited in claim 34 further comprising automatically  
22 generating a set of instructions for filtering input provided by a computing  
23 component based upon the properties of valid input defined by the input-  
24 description-data by using the organized representation of the input-description-  
25 data of the data structure.

1           **36.**   A method as recited in claim 34 further comprising storing the data  
2 structures in a persistent form.

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4           **37.**   A method as recited in claim 34, wherein the data structure is in a  
5 hierarchical markup language.

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7           **38.**   A method as recited in claim 34, wherein the input description data  
8 indicate input parameters by defining boundary delimitations of such parameters  
9 and define assumptions regarding such parameters.

10  
11          **39.**   A method as recited in claim 34, wherein during the obtaining,  
12 input-description-data is obtained from a user via a graphical user interface.

13  
14          **40.**   A computer comprising one or more computer-readable media  
15 having computer-executable instructions that, when executed by the computer,  
16 perform the method as recited in claim 34.

17  
18          **41.**   A computer-readable medium having computer-executable  
19 instructions that, when executed by a computer, performs the method as recited in  
20 claim 34.



1           **42.**   An automatic filter-instructions production system comprising:  
2           an user interface for obtaining input-description-data, which define the  
3           properties of valid input provided by a computing component;  
4           a filter-instructions automatic generator (“autogen”) configured to  
5           automatically generate a set of instructions for filtering input provided by a  
6           computing component based upon the properties of valid input defined by the  
7           input-description-data.

8  
9           **43.**   A system as recited in claim 42 further comprising a transformer  
10          configured to transform the input-description-data into a data structure.

11  
12          **44.**   A system as recited in claim 42 further comprising:  
13          a transformer configured to transform the input-description-data into a data  
14          structure;  
15          a memory, wherein the memory is configured to store the data structure.

16  
17          **45.**   A system as recited in claim 42 further comprising:  
18          a transformer configured to transform the input-description-data into a data  
19          structure;  
20          a memory, wherein the memory is configured to store the data structure,  
21          wherein the filter-instructions autogen is further configured to acquire the  
22          properties from the data structure.

1           **46.**   A system as recited in claim 42, wherein the input-description-data  
2 indicate input parameters by defining boundary delimitations of such parameters  
3 and define assumptions regarding such parameters.  
4

5           **47.**   A computer-readable medium comprising a set of instructions for  
6 filtering input, wherein such set of instructions has been automatically produced  
7 by the system as recited in claim 42.  
8

9           **48.**   An input filter of a computer having computer-executable  
10 instructions that, when executed, filter input, wherein such computer-executable  
11 instructions were automatically produced by the system as recited in claim 42.  
12

13           **49.**   A system as recited in claim 42, wherein the interface is a graphical  
14 user interface.  
15

16           **50.**   A system for facilitating the production of one or more sets of  
17 instructions, the system comprising:

18               a memory comprising a set of computer program instructions; and

19               a processor coupled to the memory, the processor being configured to  
20 execute the computer program instructions, which comprise:

21                     obtaining input-description-data, which define the properties of valid  
22 input;

23                     automatically generating a set of instructions for filtering input  
24 provided by a computing component based upon the properties of valid  
25 input defined by the input-description-data.

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2       **51.**    A system as recited in claim 50, wherein the input-description-data  
3 indicate input parameters by defining boundary delimitations of such parameters  
4 and define assumptions regarding such parameters.  
5

6       **52.**    A computer system comprising:  
7        an application program module configured to receive and respond to input  
8 provided by a computing component;  
9        an input filter module configured to receive input for the application  
10 program module, filter the input, and pass the filtered input to the application  
11 program module,  
12        wherein the filter comprises one or more sets of instructions that, when  
13 executed, filter the input and such sets of instructions having been automatically  
14 generated, based upon the properties of valid input defined by input-description-  
15 data.  
16

17       **53.**    A system as recited in claim 52, wherein the properties of valid input  
18 indicate parameters of input by defining boundary delimitations of such  
19 parameters and define assumptions regarding such parameters.  
20

21       **54.**    A computer-readable medium having computer-executable  
22 instructions that, when executed by a computer, performs the method comprising:  
23        obtaining input-description-data, which define the properties of valid input  
24 provided by a computing component;  
25

1 automatically generating a instruction for filtering input provided by a  
2 computing component based upon the properties of valid input defined by the  
3 input-description-data.  
4

5 **55.** A computer-readable medium as recited in claim 54, wherein the  
6 method further comprises loading the set of instructions as an input filter.  
7

8 **56.** A computer-readable medium as recited in claim 54, wherein the  
9 input-description-data indicate input parameters by defining boundary  
10 delimitations of such parameters and define assumptions regarding such  
11 parameters.  
12

13 **57.** An input filter comprising a computer-readable medium as recited in  
14 claim 54.  
15

16 **58.** A computer comprising one or more computer-readable media as  
17 recited in claim 54.  
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